REMARKS

Applicants thank the Examiner for the comprehensive, very helpful telephonic interview on April 10, 2002. It is believed that the present claims, amended as suggested in the interview, are in condition for allowance. However, the Examiner is courteously requested to telephone applicants' representative if any issues remain.

With regard to the amendment to the specification, priority was claimed to the mentioned provisional application, and it was incorporated by reference, in the application as filed (see handwritten notes on page 10 of the application). The present amendment merely places this information in the first sentence of the application, and does not add new matter.

New claims 26-45 reflect aspects of the invention and are fully supported by the specification.

The rejection of claim 25, on the grounds that SEQ ID NO: 4 is allegedly anticipated by the prior art, is rendered moot in view of the removal of the recitation of SEQ ID NO: 4 from that claim. Furthermore, claim 25 is not anticipated by co-pending application Ser. No. 09/027,439. Both the present application and the co-pending one claim priority to the same provisional application. Therefore, the effective filing dates of the two applications are identical, such that Serial No. 09/027,439 does not qualify as prior art against the present one.

The obviousness rejection of claims 19-24 is untenable. None of the cited references, taken separately or in combination, suggest or disclose a "method for discriminating between species of Shigella and E.coli or for discriminating among species of Shigella and E. coli in a sample containing organisms of one or more taxonomic groups, comprising, among other steps, hybridization of the recited oligonucleotides by the use of two or more wash temperatures, **at least one of which is above the oligonucleotide's calculated or experimentally determined T_m.**" Absent motivation to modify the methods of the references so as to wash at at least one temperature that is above said T_m, with the requisite reasonable expectation of success, the references do not render obvious the claimed invention. *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991).

Furthermore, the cited references do not render obvious claim 26, or the claims dependent

upon it. Claim 26 recites a method that recites, *i a.*, hybridzation to oligonucleotides consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, or SEQ ID NO: 4. As is noted in the specification, the recited hybridizations, performed with these oligonucleotides, exhibit unexpected results. Rather than hybridizing to the species from which they were originally obtained, the oligonucleotides, under selected hybridization temperatures (washes at above the oligonucleotide's calculated or experimentally determined T_m), hybridize preferentially to different species. See, *e.g.*, Tables 2, 3 and 4 of the instant specification, which show, *e.g.*, that under selected hybridization conditions, SEQ ID NO: 1, which was isolated from Sh. boydii, preferentially recognizes Sh sonnei or E. coli; SEQ ID NO: 2, which was isolated from Sh. dysenteriae, preferentially recognizes Sh sonnei or E. coli; and SEQ ID NO: 3, isolated from Sh. sonnei, preferentially recognizes E. coli. For at least this reason, claims 26-35 are not rendered obvious by any reference of record.

As for the nucleic acid probes recited in, *e.g.*, claims 25 and 37-41, these probes are neither anticipated nor rendered obvious by the prior art of record. No evidence has been provided that the sequences of these probes were known in the prior art at the time the invention was made. The sequences of Shigella rRNAs presented in Cilia are composite sequences. By contrast, the Shigella SEQ IDs of the instant invention reflect individual clones of individual rRNA genes. These specific sequences of the instantly claimed oligonucleotides cannot be contemplated or conceived based on these composite sequences. "What cannot be contemplated or conceived cannot be obvious" *In re Deuel*, 34 USPQ2d 1210 (Fed. Cir. 1995). See also *In re Bell*, 26 USPQ2d 1629 (Fed. Cir. 1993).

Supplementally, the recited nucleic acid probes exhibit unexpected properties. As noted above, the probes hybridize preferentially, at selected temperatures, to species other than the ones from which they were obtained. This provides additional evidence that the recited probes are not rendered obvious by the references of record.

As for the kit claims, it is noted that the kits of claims 42-45 comprise probes (SEQ ID NOs: 1, 2 and 3) that are novel and non-obvious, at least for the reasons discussed above. The combination of these probes within a kit is further distinguished from the prior art.

In view of the preceding amendments and remarks, it is believed that the application is in condition for allowance, which action is respectfully requested.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend the claims as indicated:

19. (Amended) A method for discriminating between species of Shigella and E. coli or for discriminating among species of Shigella and E. coli in a sample containing organisms of one or more taxonomic groups comprising:

a. selecting an oligonucleotide having a sequence from a RNA operon, wherein the sequence differs by one or more bases from at least one of the operons from the two or more species being discriminated, and wherein the oligonucleotide ~~is capable of discriminating~~ discriminates between species after hybridization by the use of two or more wash temperatures, at least one of which is ~~at or~~ above the oligonucleotide's calculated or experimentally determined T_m ~~or equivalent wash conditions~~;

b. hybridizing the oligonucleotide to nucleic acid from the sample; and

c. determining the presence or absence of hybridizing nucleic acid.

20. (Amended) The method of claim 19, wherein an oligonucleotide consisting essentially of SEQ ID NO: 1 is used to discriminate between or among Shigella and Escherichia.

21. (Amended) The method of claim 19, wherein an oligonucleotide consisting essentially of SEQ ID NO: 2 is used to discriminate between or among Shigella and Escherichia.

22. (Amended) The method of claim 19, wherein an oligonucleotide consisting essentially of SEQ ID NO: 3 is used to discriminate between or among Shigella and Escherichia.

23. (Amended) The method of claim 19, wherein an oligonucleotide consisting essentially of SEQ ID NO: 4 is used to discriminate between or among Shigella and Escherichia.

24. (Amended) The method of claim 19, wherein an oligonucleotide of RNA is used, wherein the oligonucleotide sequence ~~comprises~~ consists essentially of a sequence selected from the group consisting of SEQ ID NOs: 1, 2, 3 and 4, and wherein U substitutes for T.

25. (Amended) A nucleic acid probe ~~comprising~~ consisting essentially of the sequence of SEQ ID NO: 1, 2 or 3 ~~4~~, ~~capable of~~ which ~~distinguishing~~ distinguishes between species of Shigella in a hybridization assay, or ~~capable of distinguishing~~ distinguishes between Shigella and E. coli in a hybridization assay.

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MESSAGE, IF ANY: including cover

Attached is a Preliminary Amendment for the CPA filed 4/15/02 in the above-referenced application